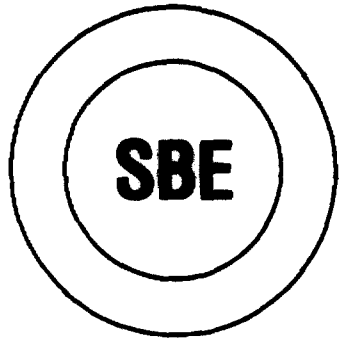
Comments of the
Society of Broadcast Engineers, Inc.

ET Docket 95-177
Operation of Unlicensed, Part 15 Biomedical Telemetry Devices on Unoccupied TV Channels



April 16, 1996

SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 15 of the Commission's Rules to Permit Operation of Biomedical Telemetry Devices on VHF TV Channels 7-13 and on UHF TV Channels	)	ET Docket No. 95-177

To: The Commission

Comments of the Society of Broadcast Engineers, Inc.

The Society of Broadcast Engineers, Incorporated (SBE), the national association of broadcast engineers and technical communications professionals, with more than 5,000 members in the United States, hereby respectfully submits its comments in the above-captioned Notice of Proposed Rule Making (NPRM) relating to unlicensed, low-power biomedical telemetry devices.

I. SBE Opposes Higher Power or Higher Field Strength Limits for Unlicensed, Part 15 Biomedical Telemetry Devices

1. At Paragraph 3 of the NPRM the Commission estimates that the current field strength limits of 1,500 microvolts per meter at 3 meters at VHF (64 dBu) and 200 microvolts per meter at UHF (46 dBu) are equivalent to device powers of 0.0004 mW at VHF and 0.000007 mW at UHF. Thus, the 5 mW device power now proposed by the Critical Care Telemetry Group (CCTG) is a request for a 41 dB increase in VHF device power, and a 59 dB increase in UHF device power. These orders of magnitude take the proposal out of realm of low-powered

devices suitable for unlicensed, Part 15 operation, and into the realm of licensed communications systems, with all the accountability and checks and balances thereof.

2. At Paragraph 6 of the NPRM the Commission notes that "The Commission has generally not permitted operation of unlicensed Part 15 devices in the television bands." And for good reason. TV receivers are in virtually every household, and in hospitals and nursing homes. The proposed field strength limit of 200,000 microvolts per meter (106 dBu) at 3 meters for such devices is equivalent to 631 microvolts per meter (56 dBu) at 951 meters (3,120 feet), and is equivalent to 1,583 microvolts per meter (64 dBu) at 379 meters (1,243 feet), assuming free space propagation. These are the defined Grade B contours for VHF high band and UHF TV stations, respectively. The SBE opposes establishing such a high field strength limit for unlicensed, Part 15, biomedical telemetry devices. The existing limits of 1,500 microvolts per meter at 3 meters for VHF biomedical telemetry devices (equivalent to 56 dBu at 7.13 meters (23.4 feet)), and 200 microvolts per meter at 3 meters for UHF biomedical telemetry devices (equivalent to 64 dBu at 0.379 meters (1.2 feet)) are far more reasonable limits, and should not be changed.

3. Indeed, considering the difficulties currently being encountered in attempting to define a relatively low-interference Advanced Television ("ATV") allocation plan in the most populous areas of the country, Southern California and especially the Northeast corridor, it appears unlikely that there will be TV channels available for such usage, especially if Congress continues to press for spectrum reclamation wherever even remotely possible, and also considering the conflicting demands for additional spectrum for licensed land mobile uses.

II. Reliance on Separation Distances for Unlicensed Devices is Unrealistic

4. The NPRM proposes minimum separation distances to co-channel television stations for the requested much higher power biomedical telemetry devices. However, these proposed separation distances are only for co-channel Part 73 full-service TV stations. No separation distances are proposed for Low Power Auxiliary Stations (LPAS), such as wireless microphones, cue and control communications systems, and TV camera synchronization systems. No separation distances are proposed to protect viewers of TV Translator, TV Booster, or Low Power Television (LPTV) stations. Although these are all Part 74 Broadcast Auxiliary stations, and therefore secondary to Part 73 TV Broadcast stations, they are still licensed stations, and their users also deserve protection from even lower priority, unlicensed, Part 15 devices.

5. At Paragraph 11, the NPRM proposes minimum co-channel separation distances of 107.1 kilometers in Zone I, and 131.8 kilometers in Zones II and III, for biomedical telemetry devices operating on Channels 7-13, and 113.2 kilometers for biomedical telemetry devices using UHF Channels 15 to 36 (480-608 MHz) and Channels 38 to 69 (614-806 MHz), in all Zones, but then questions if smaller separation distances would be appropriate based on the power of the transmitting device. It appears that the Commission has forgotten that what is being protected is not the broadcast transmitter but rather the broadcast receiver, and that the minimum separation distance would have to depend on where the broadcast receivers are located; that is, the practical service area of the protected broadcast or auxiliary broadcast station.

6. Not only does the SBE disagree that relaxed separation distances to full-service, Part 73, co-channel TV Broadcast stations should be allowed, but takes exception to the lack of proposed separation distances to Low Power Auxiliary Stations. Broadcasters pay application and user

fees for these stations, and are entitled to protection of these licensed services. SBE would propose a minimum separation distance of 80 kilometers (50 miles) to such stations. The geographic coordinates specified in Item 10B of FCC Form 313 should be used for purposes of determining this separation requirement.

7. However, SBE believes that it would be unrealistic to expect that any spacing requirement for unlicensed, Part 15 devices would be adhered to, or could be enforced. SBE seriously questions whether "trained field personnel" installing such devices would have the necessary knowledge to check the above spacing requirements. Would such persons have access to the necessary data base providing the coordinates of TV stations, TV Translator stations, or LPTV stations? Would such persons know how to check with local SBE-affiliated frequency coordinators to see if Part 74 Broadcast Auxiliary stations are authorized on TV channels? Would such persons even know what TV Zone they are in, or know how to calculate separation distances given the geographical coordinates of such stations?

8. Even if such "trained service personnel" did have the required expertise to perform the above data base checks, SBE questions whether such personnel would have the incentive to do so. According to Footnote 1 of the NPRM, CCTG is a consortium of biomedical equipment suppliers: Hewlett-Packard Company Medical Products Group, Marquette Electronics, Inc., Pacific Communications, Siemens Medical Systems, Inc., and SpaceLabs Medical, Inc. Notably missing are the names of any medical device users, such as the American Medical Association (AMA) or the American Nurses Association (ANA). The incentive for these "trained service personnel" will be to sell hardware, and not to worry whether such equipment will cause interference to Part 73 or Part 74 users, or to TV viewers.

9. Certainly the Commission's Compliance and Information Bureau (CIB), recently eviscerated by further staff reductions and office closings, could not be expected to provide the enforcement manpower necessary to ensure that the CCTG-proposed "trained service personnel" do not sell equipment to users for use in areas that do not meet minimum spacing requirements. Further, there would be nothing to keep such users from transferring such unlicensed medical telemetry equipment to other areas, as time went on, due to relocations, mergers, or similar changes.

10. The term "trained service personnel" is such a vague term as to be meaningless. Unless the Commission stipulates that persons installing unlicensed, Part 15 biomedical telemetry devices hold certification from such established groups as SBE or the National Association of Radio and Telecommunications Engineers (NARTE), any training program offered or set up by the same group that would stand to benefit by the sale of biomedical telemetry devices would have a built-in conflict of interest.

11. SBE therefore opposes any relaxation of the field strength limits for unlicensed, Part 15 biomedical telemetry devices operating on TV channels that would rely on a hopelessly optimistic expectation that minimum separation distances to licensed TV and Broadcast Auxiliary stations would be maintained. Reliance on separation distances for licensed and therefore accountable Part 90, medical telemetry devices would be realistic; reliance on separation distances for unlicensed, Part 15 medical telemetry devices would not be.[1]

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[1] Currently, higher-powered, licensed, Part 90, medical telemetry devices are allowed only in the 450-470 MHz UHF land mobile frequency band, and not in the 174-216 MHz VHF TV band or the 470-806 MHz UHF TV band. There would currently be no need for separation requirements to licensed TV or TV Broadcast Auxiliary stations, as no sharing of frequency spectrum by higher-powered medical telemetry stations occurs. SBE suggests that the

III. SBE Opposes Allowing Use of Unlicensed, Part 15 Biomedical Telemetry Devices Outside of Hospitals or Ambulances

12. SBE also opposes the proposal, at Paragraph 13 of the NPRM, that the current Part 15 Rules restriction that biomedical telemetry devices only be used in hospitals, be relaxed. As noted in the NPRM, the Commission presumed that "a certain degree of interference shielding would be achieved by restricting use of these devices to hospital buildings." SBE agrees with this. Hospital buildings are typically substantial structures. There are also a finite number of large hospital buildings in any given community, and these structures are easy to identify.

13. However, to allow the use of unlicensed medical telemetry devices to be extended to "other health care facilities," would eliminate this interference safety factor. SBE agrees with the expressed Commission concern that "other health care facilities" could include nursing homes or assisted living facilities, and that nursing homes or assisted living facilities "may be located in residential neighborhoods." SBE therefore opposes allowing the use of unlicensed, Part 15 medical telemetry devices at fixed sites other than hospitals. SBE would have less objection to unlicensed, Part 15 medical telemetry devices being operated in ambulances, because their mobile nature would make any interference occasional and transitory, though it must be recognized that ignorant attempts of ambulance attendants to use frequencies in the vicinity of new crews could disrupt the news coverage while simultaneously, as discussed below, endangering the patient.

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appropriate solution to the CCTG proposal would be a Part 90 Petition for Rule Making, where higher-powered biomedical telemetry devices would be properly treated as licensed stations.

IV. Reliance on Higher-Powered But Still Unlicensed and Unprotected Part 15 Biomedical Telemetry Devices Might Endanger Patient Safety

14. There is another reason why SBE believes that higher-powered but still unlicensed, and therefore unprotected, Part 15 Biomedical Telemetry Devices would not be in the public interest: patient safety. SBE believes that the main reasons for higher-powered Biomedical Telemetry Devices are to allow greater distances between a health care professional and patients, and to allow an increase in the number of patients that a health care professional would be expected to simultaneously monitor.

15. SBE believes that it would be inherently unsafe, and therefore not in the public interest, to expand the use of Biomedical Telemetry Devices that rely on unprotected, secondary, Part 15 unlicensed frequencies. While the current power and field strength limits for Biomedical Telemetry Devices are such that they ensure that a health care professional is in close proximity to a patient sufficiently ill to require such monitoring, SBE believes it would be unwise to allow the use of higher-powered Biomedical Telemetry Devices, when a higher priority, licensed, Subpart H ("Low Power Auxiliary Stations") Part 74 use of the same frequencies, such as for wireless microphones in support of an Electronic News Gathering ("ENG") shoots, would have the potential to disrupt such telemetry. Since many Subpart H stations are by their nature portable devices, there would be no way for either user to know of the other's location in advance. Reliance on Part 15, unlicensed and unprotected frequencies for the proposed higher-powered Biomedical Telemetry Devices would create a tragedy waiting to happen. The only parties that could support such a scenario would be liability attorneys and funeral directors.

16. This is not idle speculation on the SBE's part. For instance, during 1992 field testing of a proposed High-Definition Television ("HDTV") system, measurements were not possible

at one point in the Los Angeles, California basin due to use of a Part 74 wireless microphone operating on 183.00 MHz. This device was being used by an ENG crew covering a story about a half-block away. SBE submits that if the chance meeting of a licensed, Part 74 wireless microphone and a one-time series of grid-based field measurements on a developmental HDTV transmission system could occur in the area the size of the greater Los Angeles basin, the chances of similar interference occurring should much greater powers for unlicensed, Part 15 Biomedical Telemetry Devices be allowed would be high, particularly since many users of Part 74 mobile wireless devices must be, by their very nature, highly itinerant. Only now the consequence could be loss of life rather than the mere loss of data at one measuring point.

V. Summary

17. The proposal to allow more than a four order of magnitude increase in transmitter power and more than a two order of magnitude increase in the field strength limit for unlicensed, Part 15 Biomedical Telemetry Devices operating on VHF TV Channels 7-13, or to allow an almost six order of magnitude increase in transmitter power and a three order of magnitude increase in the field strength limit for unlicensed, Part 15 Biomedical Telemetry Devices operating on UHF TV Channels, is a bad idea that would cause interference to the reception of TV signals that would far outweigh any alleged public-interest benefits that might accrue to the medical community.[2] The concept of minimum separation distances for unlicensed, Part 15 devices is

[2] SBE questions whether any cost savings to the medical community, especially nursing homes or assisted living facilities, would be passed along to patients. Instead, SBE believes that any cost savings accruing to higher powered unlicensed, Part 15 biomedical devices would be used to further reduce the staff-to-patient ratio at such facilities, and only serve to improve the bottom line of these forms of health care facilities. To that end, the benefits would be primarily

fundamentally flawed and unrealistic use of unprotected Part 15 frequencies for medical telemetry may even place patients at risk. The SBE therefore urges the Commission not to adopt this proposed relaxation of Part 15 of the FCC Rules.

Respectfully submitted,

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to the private parties operating such for-profit health care facilities, and not the general public. Indeed, the availability of much higher powered unlicensed, Part 15, biomedical telemetry devices might even be contrary to the public interest, in that it might jeopardize patient care if improperly used to justify further staff reductions at medium- and low-level health care facilities.